Reference in Conceptual Realism

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Theories of reference in the 20th Century have been almost exclusively theories of singular reference—i.e. theories of the use of proper names and definite descriptions to refer to single objects. This is in marked contrast with medieval theories and the traditional theories of reference that are part of syllogistic logic. Even at the turn of the century, the theory propounded by Bertrand Russell in his 1903 *Principles of Mathematics*—where quantifier phrases (built up out of determiners such as 'all', 'every', 'any', 'a', 'some' and 'the' applied to a common count noun) were said to stand for denoting concepts—was a theory of general as well as of singular reference. But then Russell abandoned this theory in his 1905 paper, "On Denoting", where all quantifier phrases, and not just definite descriptions, were said to be "incomplete symbols", and all propositions that he had earlier described as containing denoting concepts were now said to be eliminable in favor of conjunctions and disjunctions of singular propositions.[1]

Proper names, in Russell's first theory, were said not to have any meaning (such as might be expressed by a definite description) but to "merely indicate without meaning" ([PoM], p. 502)—a view not unlike that propounded nowadays by the so-called "new" theory of direct reference. In his later theory, however, Russell took ordinary proper names to be eliminable in terms of definite descriptions—though he did allow for a category of "logically proper names" (such as 'this' and 'that'), each of which he said "applies directly to just one object, and does not in any way *describe* the object to which it applies."[2] This category of logically proper names figured prominently in Russell's logical atomism, where the idea of eliminating all forms of general reference found its clearest paradigm. Indeed, this way of reducing general reference to the singular reference of logically proper names, or what came to be called individual constants, was laid out explicitly by Carnap in his state description semantics, which he applied to quantified modal logic as well.[3] In many ways, and however unwittingly, it is this paradigm for reducing general reference to singular reference that has sustained the so-called "new" theory of direct reference.

[1] Thus, Russell claimed that his new theory "gives a reduction of all propositions in which denoting phrases [sic] occur to forms in which no such phrases occur" (p. 45 of [L&K]).

[2] See "On the Nature of Acquaintance" (1914) in [L&K], p. 167f.

[3] See Carnap [1946], where, in terms of his state description semantics, Carnap validated the necessity of identity, the modal thesis of anti-essentialism, and what later came to be called the Barcan formula, for which he gave an informal semantical argument as well.

Aside from this paradigm, there were no explicit arguments against theories of general reference in favor of singular reference. This situation changed in 1962 when Peter Geach published his book, *Reference and Generality,* which was later revised and reprinted in 1980. In this book, Geach developed arguments that are supposed to apply to any theory of general reference, as well as others that are designed to work specifically against Russell's early theory and medieval *suppositio* theories. The arguments that are supposed to apply to all theories provide a useful foil against which to test a proposed theory of general reference, which is how we view them here in what follows. In terms of the framework of conceptual realism[4], we shall describe, a theory of reference that represents general and singular reference in a uniform way, and we shall then test the adequacy of this theory by seeing how Geach's arguments fail to apply to it.

It should be noted that the theory of reference we will sketch is a conceptual theory, by which we mean a theory that attempts to explain the use of referential concepts in speech and mental acts, which is what some philosophers of language call a pragmatic theory, as opposed, e.g., to a purely abstract semantical theory. It is our view that this is where reference has it basic and primary role, and that any other notion of reference will be derivative upon this. A fundamental goal of this sort of theory is that it should generate logical forms that represent the cognitive structure of our speech and mental acts, as well as logical forms that represent only the truth conditions of those acts, and it must then show how these two kinds of logical forms are connected. The distinction is important in that logical forms that represent the truth conditions of our speech and mental acts need not also represent the cognitive structure of those acts, including in particular the referential and predicable concepts that underlie them and in terms of which their cognitive structure is characterized.

1. The Core of Conceptual Intensional realism

There are really two kinds of realism in conceptual realism: an intensional realism having to do with the denotata of nominalized predicates and propositional forms, and a natural realism having to do with natural kinds and natural properties and relations. We will concern ourselves here only with the former and not at all with the latter.[5]

The core of the theory, which we will only briefly describe here, amounts to an extension of standard second-order logic in which sentence forms and predicate expressions can be nominalized and allowed to occur as abstract singular terms on a par with individual variables—with the one modification that the first-order part of the logic is free of existential presuppositions for singular terms. Complex predicates

[4] See Cocchiarella [1989] and [1996] for more details about this framework.

[5] See Cocchiarella [1996] for a description of how both kinds of realism are contained in the general framework of conceptual realism.

are formed by means of λ-abstraction, so that where φ is a formula and $y_1, ..., y_n$ are pairwise distinct individual variables, $[\lambda y_1...y_n\varphi]$ is an n-place predicate expression. A predicate expression is always accompanied by a pair of parentheses (and commas if it is relational) when it occurs in its functional role as a predicate, as in $F(x_1, ..., x_n)$ and $[\lambda y_1...y_n\varphi](x_1, ..., x_n)$, where F and $[\lambda y_1...y_n\varphi]$ are n-place predicate expressions. (We drop the parentheses and commas when referring to predicates *simpliciter*.) To nominalize a predicate expression, we simply drop the parentheses (and commas) and allow the result to occur as an abstract singular term—as in $G(F)$, $G([\lambda y_1...y_n\varphi])$, $R(x, F)$, and even $G(G)$ and $R(x, R)$, where G is a 1-place, R a 2-place, and F and $[\lambda y_1...y_n\varphi]$ are n-place predicates (for $n \in \omega$). (This applies whether G and R are predicate variables, constants, or λ-abstracts, as, e.g., in $[\lambda x\varphi]([\lambda x\varphi])$). (We use capital letters for predicate variables and constants, lower-case letters for individual variables, and Greek letters for formulas.)

Because predicates can be nominalized, the comprehension principle of our core theory, which we call HST^*_λ, can be stated in the following simple form (where F is not free in φ),

$$(\exists F)([\lambda x_1...x_n\varphi] = F), \qquad (\mathrm{CP}^*_\lambda)$$

from which the more usual (but weaker) form,

$$(\exists F)(\forall x_1)...(\forall x_n)[F(x_1, ..., x_n) \leftrightarrow \varphi], \qquad (\mathrm{CP}^*)$$

follows. Russell's paradox, as represented through the Russell predicate $[\lambda x(\exists G)(x = G \wedge \neg G(x))]$, is not derivable in HST^*_λ, which in fact is consistent (relative to weak Zermelo set theory) and equipollent to the theory of simple types[6]. This is because even though the Russell predicate, by (CP^*_λ), stands for a concept, i.e., even though

$$(\exists F)([\lambda x(\exists G)(x = G \wedge \neg G(x))] = F)$$

and therefore

$$(\exists F)(\forall x)(F(x) \leftrightarrow (\exists G)[x = G \wedge \neg G(x)])$$

are provable in HST^*_λ, nevertheless all that follows by Russell's argument is that when nominalized, the abstract singular term corresponding to the Russell predicate fails to denote an object (as a value of the bound individual variables), i.e.,

$$\neg(\exists y)([\lambda x(\exists G)(x = G \wedge \neg G(x))] = y)$$

is also provable.[7]

[6] See Cocchiarella [1986] for the proofs of these claims.

[7] Denotation is not the same as reference in this framework, where the latter, as we explain in a subsequent section, is a pragmatic concept having to do with the exercise of referential concepts (as cognitive capacities). Denotation, on the other hand, is a semantic concept involved in the evalution of truth conditions. To say that a singular term a fails to denote, we mean that $\neg(\exists y)(a = y)$ is true, where y is an individual variable not occurring free in a.

It is important to distinguish predicable concepts here, which are values of the predicate variables, from the abstract objects (if any) that are their intensional contents and that are denoted by nominalized predicates as abstract singular terms. We take predicable concepts to be intersubjectively realizable (and in that sense *objective*) cognitive capacities, or cognitive structures based upon such capacities, to characterize and relate objects in various ways—and in particular we take them to be the cognitive capacities that underlie our rule-following abilities in the correct use of predicate expressions. We assume in this regard that predicable concepts are those features of thought and communication that determine the truth conditions of predicate expressions, i.e. the truth conditions that predicates have in different possible contexts of use. It is through the exercise of these capacities that our mental acts (and in that regard our speech acts as well) are informed with a predicable nature. Moreover, as cognitive capacities, which can be exercised by different people at the same time, as well as by the same person at different times, predicable concepts have an unsaturated nature (which is similar to, but not the same as Frege's notion of unsaturatedness). In this regard, predicable concepts are not objects, though the exercise of such a concept in a mental or speech act results in an object—namely, an event.[8]

What a nominalized predicate denotes, accordingly, if it denotes anything at all, cannot be the concept that the predicate stands for in its role as a predicate. That it denotes anything at all is a posit that is made in conceptual realism for most (but not all) concepts; and in particular the posit is that as an abstract singular term a nominalized predicate denotes an intensional object—specifically, the intensional content of the concept that the predicate stands for in its role as a predicate. Here, by the intensional content of a concept we mean a hypostatization, reification, or projection into the domain of objects of the truth conditions determined by the different possible applications or exercises of that concept as a cognitive capacity. It is by mean of such a projection, or conceptual nominalization, that we purport to denote the intensional content of a concept—which we also call the *intension* of the concept—as if it were an independently existing real Platonic form. Thus, not only do we predicate of someone that he is cruel, or kind, wise, or stupid, or of a balloon that it is round and red, but also through a conceptual nominalization of these concepts, we purport to denote the properties of *being cruel*, or *being kind*, *being wise*, or *being stupid*, of *being round* and *being red*—i.e. the properties *cruelty*, *kindness*, *wisdom*, *stupidity*, *roundness* and *redness*. It is through this process of conceptual nominalization (as a product of linguistic and cultural evolution) that we hypostatize, or reify, the intensional content of a concept as a real abstract object, and we do so by

[8]Although not all mental acts are speech acts, speech acts are mental acts expressed overtly in terms of linguistic conventions.

starting out from the concept as a cognitive capacity. The assumption that conceptual nominalization (reification) leads to real abstract objects (as emergent products of cultural evolution) is an ontological posit that goes beyond conceptualism proper, and forms part of what we mean here by conceptual realism.

2. Referential Concepts, Simple and Complex

In addition to predicable concepts and their abstract intensional contents, there are also referential concepts and their abstract intensional contents. In conceptualism, as we understand it here, referential concepts are cognitive capacities that have a structure complementary to predicable concepts the way that quantifier phrases are complementary to predicate expressions (or the way that noun phrases are complementary to verb phrases). When exercised jointly with a predicable concept in a speech or mental act, a referential concept informs that act (an event) with a referential nature, just as the predicable concept informs that act with a predicable nature. It is the exercise of a referential concept that accounts for the aboutness or directedness to objects of a speech or mental act, and it is the exercise of a predicable concept that accounts for what we predicate of such objects. An affirmative assertion that is analyzable in terms of a noun phrase and a verb phrase (regardless of the complexity of either), for example, is semantically analyzable in terms of an overt application of a referential concept with a predicable concept, with the assertion itself, an event, being the mutual saturation of their complementary structures in that speech act.[9]

Referential concepts, on our analysis, are what quantifier phrases stand for when the latter are properly represented as containing a type of expression that we call names, both proper and common, and both simple and complex. By a common name we mean here a common count noun, including those (such as 'cat', 'dog', 'tree', 'animal', etc.) whose use in thought and communication is associated with certain identity criteria, as well as those (such as 'object', 'thing', or 'individual') that are not associated with any specific identity criteria. Both kinds of common nouns stand for *common name concepts*, but we call those that have identity criteria associated with their use *sortal concepts*, because they involve classifying objects into different sorts.[10] Thus, where S is a sortal constant for the common name 'swan', and W is a monadic predicate constant for 'white', an assertion of 'All swans are white' has a

[9] In exercising a referential concept we purport to refer, and do not necessarily succeed in actually referring to what we purport to refer—which is why the aboutness or directedness of the act is said to be a form of intentionality. What the conditions are for successful reference is an issue we do not go into here.

[10] Mass nouns are common nouns that also stand for sortal concepts; but they are not count nouns. Reference with respect to these kinds of sortals brings in problems about quantities of "stuff" that we cannot go into here. For convenience, we do not include them in our present account of general reference.

cognitive structure that corresponds to its grammatical analysis in terms of a noun phrase and a verb phrase, i.e., its analysis as '[All swans]$_{NP}$[are white]$_{VP}$'. The logical form of this cognitive structure is represented in our extended theory as $(\forall xS)W(x)$, or using λ-abstracts, as $(\forall xS)[\lambda xW(x)](x)$, where the quantifier phrase $(\forall xS)$ stands for the referential concept, and $[\lambda xW(x)]$ the predicable concept, that are exercised and mutually saturated in that speech act, thereby informing the act with a referential and a predicable nature. The logical form of the cognitive structure of an assertion or thought of 'Some swans are not white', with the negation understood internally as part of the predicate, is represented as $(\exists xS)[\lambda x\neg W(x)](x)$, where $(\exists xS)$ and $[\lambda x\neg W(x)]$ represent the referential and predicable concepts, respectively, that inform that speech act or mental act with a referential and predicable nature. A similar analysis applies to other referential concepts, such as those based on the determiners 'most', 'few', and numerical quantifiers, as in 'most swans are white', 'few swans are white', 'three swans are white', etc.

As referential expressions, the objectual quantifier phrases $(\forall x)$ and $(\exists x)$ (or their rewrite variants) that are already present in our theory of logical form are now construed as abbreviated forms of $(\forall xObject)$ and $(\exists xObject)$, where the common name, 'object', is rendered explicit as part of the quantifier. For convenience, we will continue to use the familiar abbreviated forms, although occasionally we will also use the fuller expression to emphasize some particular point of analysis. The logical connection between our new logical forms, e.g., $(\forall xS)F(x)$ and $(\exists xS)F(x)$, and forms in terms $(\forall x)$ and $(\exists x)$, is given by the following formulas, which we take as laws of logic (having arbitrary formulas as substituends for F):

$$(\forall xS)F(x) \leftrightarrow (\forall x)[(\exists yS)(x = y) \rightarrow F(x)],$$

$$(\exists xS)F(x) \leftrightarrow (\exists x)[(\exists yS)(x = y) \wedge F(x)].$$

The right-hand side of each of these biconditionals is equivalent (by λ-conversion) to a formula made up explicitly of the mutual saturation of a quantifier phrase and a predicate expression; that is, by λ-conversion, we also have the following biconditionals:

$$\begin{array}{lcl} (\forall xS)F(x) & \leftrightarrow & (\forall x)[\lambda x((\exists yS)(x = y) \rightarrow F(x))](x), \\ (\exists xS)F(x) & \leftrightarrow & (\exists x)[\lambda x((\exists yS)(x = y) \wedge F(x))](x). \end{array}$$

The point that should be noted here is that despite their logical equivalence (and therefore their having the same truth conditions) the formulas on each side of these biconditionals do not represent the same speech or mental acts. Thus, whereas a speech or mental act whose cognitive structure is represented by a formula on the left side is informed by a referential concept to all (or some) S, and predicates of them that they are F, a speech act corresponding to a formula on the right side is informed by a referential concept to all (or some) *objects* and predicates of each that *if* it is an S, *then* it is also F (or of some *object* that it is an S *and* that it is F).[11]

We should note here that Geach allows only sortal quantifiers and rejects unrestricted quantifiers for objects *simpliciter*.[12] He also rejects identity *simpliciter* and allows only for identity relative to a sortal, or what we also call sortal identity. We agree that at least in the initial stages of conceptual development (i.e. from childhood up to a mature grasp of our commonsense framework) identity criteria are first learned in terms of sortals, as when we learn to speak of the same dog, the same tree, the same house, etc. If we were to explicitly represent such a stage of conceptual development, we would take identity relative to a sortal S as a primitive notion, symbolized, e.g., as '$x =_S y$', which we read as 'x is the same S as y'. Unrestricted identity, i.e. identity *simpliciter*, would then be a concept developed later in terms first of sortal identity, where it would be understood as identity relative to some sortal or other. That is, at a later, intermediate stage we implicitly understand identity as follows:

$$(x = y) =_{df} (\exists S)(x =_S y).$$

Similarly, unrestricted quantifiers for objects in general would, at least initially, be formed in terms of sortal quantifiers, which is how general reference is first learned. That is, reference to all objects, or to some objects, *simpliciter* would be implicitly understood at an intermediate stage first as a reference to all objects of any sort, or to some objects of some sort:

$$(\forall x)\varphi =_{df} (\forall S)(\forall xS)\varphi$$
$$(\exists x)\varphi =_{df} (\exists S)(\exists xS)\varphi.$$

Geach would reject the above analyses. In particular, according to him, Leibniz's law is not valid for relative identity. Thus, for example, according to Geach, we can have both x is the same S as y but not the same S' as y, i.e. $(x =_S y)$ and $(x \neq_{S'} y)$, where x, y are objects and S and S' are distinct sortals.[13] This is not a view we accept in conceptualism, where Leibniz's law is what distinguishes identity from equivalence relations in general.[14] We do not, in other words, accept Geach's injunctions in these

[11] A speech or mental act represented by the formulas on the right-side of these biconditionals are L-equivalent (and in that sense *correspond*) to formulas that represent the cognitive structure of the speech act or mental act indicated above; they do not themselves represent such a cognitive structure because the sortal quantifier occurring in the predicate expression is not represented as having been deactivated. We explain the distinction between activated and deactivated referential concepts and their related expressions in section 4 below.

[12] See [R&G], chapter 6. What we call a sortal concept Geach calls a *substantival* general term (ibid., p. 64).

[13] See, e.g., Geach [1973].

[14] See Wiggins [1980], p. 21, and Stevenson [1972] for a defense of this position.

matters.

We will not assume here that identity *simpliciter* and referential concepts to objects in general are defined as above in our present framework—though, as we have said, those analyses do mark an important stage in the development of these concepts in our mature commonsense framework. Rather, we take identity as a primitive of our theory, as well as the quantifiers phrases based on the common name 'object', i.e. the quantifier phrases $(\forall x)$ and $(\exists x)$ (and their rewrites of the variable x). Quantifier phrases based on other common names (such as 'event' and 'artifact') that do not have specific identity criteria associated with their use (as opposed to specific *sorts* of events or artifacts) are also allowed (with the common names taken as primitive constants), but we will assume that common name variables and quantifiers binding such range only over sortal concepts.

Complex common names in English are generated from more basic common names by attaching a (defining) relative clause to the latter. We introduce for this purpose a new primitive operator, '/', and represent the operation of attaching a relative clause, represented by a formula φ, to a common name S by 'S/φ', which we then take to be a complex common name, read as 'S (who, which) that is (are) φ'. For example, 'Every number that is a multiple of 2 is even' contains the complex common name 'number that is a multiple of 2' and can be symbolized as $(\forall xS/F(x))G(x)$, where S is a sortal constant for 'number', '$F(x)$' is read 'x is a multiple of 2', and '$G(x)$' is read 'is even'. We account for the use of such complex common names and the more usual way of representing relative clauses by assuming the following as meaning postulates (conceptual truths) of our theory (where S is a schema letter for common names and arbitrary formulas can be substituted for F):

$$(\forall xS/\varphi)F(x) \leftrightarrow (\forall xS)[\varphi \rightarrow F(x)], \tag{MP$_1$}$$

$$(\exists xS/\varphi)F(x) \leftrightarrow (\exists xS)[\varphi \wedge F(x)]. \tag{MP$_2$}$$

Iterations of the /-operation can be reduced by means of these laws to simple conjunctions as relative clauses; that is, by the above laws and other standard transformations,

$$(\forall xS/\varphi/\psi)F(x) \leftrightarrow (\forall xS/\varphi \wedge \psi)F(x),$$

$$(\exists xS/\varphi/\psi)F(x) \leftrightarrow (\exists xS/\varphi \wedge \psi)F(x),$$

are valid theorem schemas of our theory of general reference.

Finally, we note that the category of names is made up of proper, as well as common, names, and that proper names, like sortal common names, also have identity criteria associated with their use. These identity criteria are determined for the most part by a common name sortal that corresponds to the proper name. We agree in this regard with Geach who writes that for "every proper name there is a corresponding use of a common noun preceded by 'the same' to express what requirements as to identity the proper name conveys" ([R&G], p. 68). For Geach, such a common noun "expresses the nominal essence" or "sense" of the proper name (ibid.). The sense of a proper name "need not include the sense of any predicables", Geach observes, and, in this regard he is quite adamant in "rejecting Russell's notorious disguised-description theory of proper names" (ibid.). These are points about proper names that we that we agree with in our conceptualist theory of reference, except that on our account, as we explain below, a proper name stands for a special type of sortal concept rather than has a sense.[15]

Both proper and common names, Geach also points out, are different from predicate expressions in that they can be "used outside the context of a sentence" in "simple acts of naming", which are not assertions, and, in that respect, do not amount to the use of a name to refer.[16] Our interest here is with reference, however, and not simple acts of naming, and the referential use of a name, whether proper or common, always occurs, at least implicitly, within the context of a sentence. It is in regard to the logical form of the referential use of a proper name as part of an assertion that our account differs from Geach's. On Geach's account, only a proper name is a "genuine" referring expression, or what he also calls a "genuine logical subject" (ibid., p. 86); and, apparently, the representation of a proper name in logical syntax is to be none other than as an individual constant—just as Frege and most of the contemporary views, including the so-called "new" theory of direct reference, would have it.

On our account, proper names are no different from common names in the way they are used to stand for referential concepts, and, in particular, in the way they inform a speech or mental act with a referential nature. In fact, we take proper names to be a type of sortal common names that necessarily satisfy a condition of uniqueness. That is, a sortal name S is a proper name only if S can be used to refer to at most one thing, or, in symbols, only if $(\forall xS)(\forall yS)(x = y)$ is a conceptual (necessary) truth. (If modal operators are added to our theory, we assume that proper names are "rigid", so that $(\forall xS)\Box(\forall yS)(x = y)$ is also a necessary truth.[17]

[15]The rejection of Russell's disguised-description theory of ordinary proper names is an essential part of the so-called "new" theory of direct reference as well; but, unlike Geach's and our present account, the latter rejects the idea that a proper name has a sense or stands for a sortal concept.

[16][R&G], p. 52. "Nouns in the vocative case used in greetings, and again ejaculations like 'Wolf!' and 'Fire!' illustrate this independent use of names", Geach observes, "and we get a very similar independent use of names when labels are stuck on things, e.g. 'poison' on a bottle or the name labels sometimes worn at conferences" (ibid.).

[17]Proper names of concrete objects, as opposed to names of abstract objects, are vacuous in any world in which those objects do not (concretely) exist. The "rigidity" of these kinds of names is that they refer to the same objects in any possible world in which those objects exist. Thus, where $E!$ is a predicate for the concept of *concrete existence* (as opposed to the concept of *being*, which all values of the bound individual variables, abstract or concrete, fall under), these conditions for

One noteworthy feature of our account is that it provides an appropriate representation of the two ways that a proper name might be used in a referential act; namely, when the reference is made with an existential presupposition, as opposed to when it is made without such a presupposition.[18] An assertion, for example, of 'Pegasus does not exist' (where, by existence we mean concrete existence) would normally involve a referential use of 'Pegasus' that is without existential presupposition, which we can symbolize as $(\forall x Pegasus)\neg E!(x)$. A referential use of 'Pegasus' that is with existential presupposition, such as might have been made by someone in ancient Greece to assert that Pegasus can fly, can be symbolized as $(\exists x Pegasus)F(x)$, where F stands for the concept predicated. In both cases the speech or mental act in question is informed with a referential nature, but only in the latter case can we say that the referential nature of the act is with an existential presupposition.

A similar distinction applies to the referential use of definite descriptions, incidentally, which we also represent as quantifier phrases. We introduce for this purpose two new quantifier signs, $\exists_1$ and $\forall_1$, where $\exists_1$ indicates the referential use of a definite description that is with existential presupposition, as opposed to $\forall_1$, which indicates the referential use of a definite description that is without existential presupposition. For example, an assertion of 'The man wearing a brown hat is bald', in which the referential use of the complex noun phrase 'the man wearing a brown hat' is with existential presupposition can be symbolized as

$$(\exists_1 x S/F(x))G(x),$$

where S is a sortal name for 'man', $F(x)$ is read 'x is wearing a brown hat', and $G(x)$ is read 'x is bald'. An assertion of this logical form has the same truth conditions that Russell gave in his 1905 analysis; that is, we assume the following as a conceptual truth of our theory of reference:

$$(\exists_1 x S/F(x))G(x) \leftrightarrow (\exists x S)[(\forall y S)(F(y) \leftrightarrow y = x) \wedge G(x)],$$

or using λ-abstracts (and λ-conversion),

$$(\exists_1 x S/F(x))G(x) \leftrightarrow (\exists x S)[\lambda x((\forall y S)(F(y) \leftrightarrow y = x) \wedge G(x))](x).$$

proper names can be summed up as follows:

$$PN(S) =_{df} \Box(\forall x S)(\Box(\forall y S)(x = y) \wedge \Box[E!(x) \rightarrow (\exists y S)(x = y)]).$$

Note that where x is an abstract object, then it is a conceptual (necessary) truth that x does not exist in the concrete sense, i.e., $\Box\neg E!(x)$ is true, in which case the condition $\Box[E!(x) \rightarrow (\exists y S)(x = y)]$ is vacuously true of x.

[18] It is noteworthy that this is a distinction the so-called "new" theory of direct reference is unable to make.

An assertion of 'The student who wrote the graffiti on the blackboard will be punished', as made by a teacher to her class, where the referential use of 'the student who wrote the graffiti on the blackboard' is without existential presupposition (because the teacher is not sure that just one student wrote the graffiti, or that it was a student, and not a colleague, who wrote it) can be symbolized as

$$(\forall_1 xS/F(x))G(x),$$

where S is a sortal for 'student', $F(x)$ is read 'x wrote graffiti on the blackboard', and $G(x)$ is read as 'will be punished'. The truth conditions for an assertion of this form can be given as follows:

$$(\forall_1 xS/F(x)G(x) \leftrightarrow (\forall xS)[(\forall yS)(F(y) \leftrightarrow x = y) \to G(x)],$$

or in terms of λ-abstracts,

$$(\forall_1 xS/F(x)G(x) \leftrightarrow (\forall xS)[\lambda x((\forall yS)(F(y) \leftrightarrow x = y) \to G(x))](x).$$

Russell did not himself distinguish referentially using a definite description without, as opposed to with, existential presupposition; and the analysis he gives makes it clear that he was concerned only with a logical representation of the truth conditions of such an assertion and not with a logically perspicuous representation of its cognitive structure, including in particular the referential and predicable concepts that underlie that structure. For example, regardless whether the referential concept being applied in such an act is with or without existential presupposition, it is the same predicable concept that is applied in either case. In the formulas corresponding to the Russellian type of analyses it is not the same, but a different, predicable concept that is applied in each case (as can be seen in the λ-abstract symbolizations).[19] Also, whereas the assertion in question is the result of applying a complex referential concept with a simple predicable concept (or what can be regarded as such for our purposes), the speech or mental acts represented by the logical forms corresponding to the Russellian type of analyses are the result of applying a simple referential concept with a complex predicable concept. It is this distinction between logical forms that represent the cognitive structure of our speech and mental acts and logical forms that represent the truth conditions of those acts that is important and fundamental in conceptual realism; and it is a distinction that is not to be found in standard theories of reference, including the so-called "new" theory of direct reference.

[19] As noted in a previous footnote, the formulas on the right-hand side of these biconditionals only correspond to, and do not themselves represent, a speech or mental act—because the sortal quantifiers occurring in the predicate expressions of these formulas have not been "deactivated" (a notion we explain in section 4).

3. Geach's Negation and Complex Predicate Arguments

For Geach, as already noted, the only "genuine" form of reference is by means of singular terms, and in particular by means of proper names. Thus, where '$f(\ )$' represents a propositional context of English from which a proper name has been extracted—which is the sort of context Geach calls a *predicable*—and '$f'(\ )$' represents a predicable contradictory to '$f(\ )$', then, according to Geach, "when attached to any proper name 'a' as subject, they will give us contradictory predications; but if '$^*A$' takes the place of 'a' [where 'A' is a sortal common name and '$^*A$' is a quantifier phrase of English], the propositions '$f(^*A)$' and '$f'(^*A)$' will in general not be contradictories—both may be true or both false" ([R&G], p.84). For example, 'Some democrat will vote a straight ticket' and 'Some democrat will not vote a straight ticket' can both be true, whereas 'Bill will vote a straight ticket' and 'Bill will not vote a straight ticket' cannot both be true—where it assumed that both 'democrat' and 'Bill' can be used to name someone in "simple acts of naming". This shows, Geach claims, that unlike the proper name 'Bill', the quantifier (noun) phrase 'some democrat' is only a "quasi subject", not a "genuine subject", and therefore cannot really be used as a "genuine" referential expression.[20] In other words, quantifier phrases, unlike proper names, cannot be used to stand for referential concepts (or, in Geach's terms, cannot be "genuine logical subjects") because they do not in general yield contradictory propositions when applied to contradictory predicables.

Geach does not justify or explain why yielding contradictory propositions when applied to contradictory predicables is a necessary condition for "genuine" reference—except, of course, for maintaining that this is what is true of proper names. That referential expressions cannot be used as forms of "genuine" reference unless they function the same way as proper names is simply assumed, in other words, which begs the question at issue. Moreover, even when restricted to proper names, Geach's "criterion", or "definition" (rather than a real argument), for "genuine reference"—i.e. the claim that a "genuine" referring expression will yield contradictory propositions when applied to contradictory predicables—is not unqualifiedly true. For example, using $[\lambda x\varphi]$ and $[\lambda x\neg\varphi]$ to represent contradictory predicables, and an individual parameter (variable) a to represent the kind of symbol Geach takes a proper name to be, the claim that $[\lambda x\varphi](a)$ and $[\lambda x\neg\varphi](a)$ are contradictories is not necessarily true. In particular, whereas

$$\neg[\lambda x\varphi](a) \leftrightarrow (\forall x)[x = a \rightarrow \neg\varphi],$$

and

$$[\lambda x\neg\varphi](a) \leftrightarrow (\exists x)[x = a \wedge \neg\varphi],$$

[20] Geach speaks of 'referring phrases' where we speak of referential expressions. He adopts this terminology, which he takes to be a "misnomer", only for the purpose of describing the theories of general reference that he claims to refute (cf., e.g., [R&G], p.73).

are valid in a logic free of existential presuppositions for singular terms, we do not also have

$$(\forall x)[x = a \to \neg\varphi] \leftrightarrow (\exists x)[x = a \wedge \neg\varphi]$$

as valid as well. It is not unqualifiedly true in such a logic, in other words, that a will yield contradictory propositions when applied to contradictory predicables; i.e.,

$$\nvdash \neg[\lambda x\varphi](a) \leftrightarrow [\lambda x\neg\varphi](a).$$

What does follow in such a logic is that any common-name sortal S, whether it is a proper-name sortal or not, which can be used in "simple acts of naming" to name at least one, and at most one, object will yield contradictory propositions when applied to contradictory predicables; that is,

$$(\exists xS)(\forall yS)(x = y) \to [\neg(\exists xS)\varphi \leftrightarrow (\exists xS)\neg\varphi] \wedge [\neg(\forall xS)\varphi \leftrightarrow (\forall xS)\neg\varphi]$$

is valid regardless whether or not S is a proper-name sortal or not.[21] There is nothing about this result that shows that the only "genuine" referential expressions are those of the form $(\exists xS)$, where S is a sortal name for which the above antecedent condition is true.

Geach gives a similar argument based on the observation that connectives "that join propositions may be used to join predicables" to form complex predicate expressions ([R&G], p. 86). His claim—which is really an assumption, and not an observation in this case—is that "the very meaning" connectives "have in the latter use is that by attaching a complex predicable so formed to a logical subject [i.e. to a "genuine" referring expression] we get the same result as we should by first attaching the several predicables to that subject, and then using the connective to join the propositions thus formed precisely as the respective predicables were joined by that connective" (ibid.). This claim (assumption) is true, at least as far as truth conditions are concerned, when restricted to proper names: an assertion of 'George is home or at the office', for example, has the same truth conditions (but not the same cognitive structure) as an assertion of 'George is home or George is at the office'. Indeed, where a is an individual parameter (variable) representing the kind of symbol Geach takes a proper name to be,

$$[\lambda x(\varphi \vee \psi)](a) \leftrightarrow [\lambda x\varphi](a) \vee [\lambda x\psi](a)$$

is valid (and provable) in our logic.

The claim (assumption) is not in general true when applied to a universal quantifier phrase, on the other hand. For example, as Geach notes, 'Every politician either

[21] Geach, it should be noted, rejects the use of "empty proper names" ([R&G], p. 186), which indicates how inappropriate his theory of reference really is for natural language.

is cynical or deceives himself' is not equivalent to 'Either every politician is cynical or every politician deceives himself'; and in fact

$$(\forall xS)[\lambda x(\varphi \vee \psi)](x) \leftrightarrow (\forall xS)[\lambda x\varphi](x) \vee (\forall xS)[\lambda x\psi](x)$$

is not a valid schema in our logic.[22] This does not show that a universal quantifier phrase cannot be used as a "genuine" referential expression—that, e.g., in a speech act in which 'Every politician either is cynical or deceives himself' is asserted, there is no "genuine" reference to every politician—as Geach maintains. Rather, it shows that Geach's claim (assumption) is just not true in general. That is, it begs the question at issue.[23]

Similarly, in the case of conjunctive compounds, why should we conclude that the invalidity of

$$(\exists xS)[\lambda x\varphi](x) \wedge (\exists xS)[\lambda x\psi](x) \rightarrow (\exists xS)[\lambda x(\varphi \wedge \psi)](x)$$

shows that a quantifier phrase of English that can be represented by $(\exists xS)$, where S is a sortal common name (complex or simple), cannot be used as a "genuine" referential expression? The failure of "synonymy" does not show this except by begging the question that only proper names can be "genuine" referential expressions. It is perhaps noteworthy, moreover, that the antecedent of the above conditional—i.e. the conjunction, $(\exists xS)[\lambda x\varphi](x) \wedge (\exists x\ S)[\lambda x\psi](x)$—does not represent a basic speech act that is analyzable in terms of a nominal (referring) expression and a verbal (predicating) expression. Rather, it can at best be used to represent a speaker's

[22] The equivalence does hold, on the other hand, if the common name sortal S can be used to name at most one object in "simple acts of naming"; i.e.,

$$(\forall xS)(\forall yS)(x = y) \rightarrow [(\forall xS)[\lambda x(\varphi \vee \psi)](x) \leftrightarrow (\forall xS)[\lambda x\varphi](x) \vee (\forall xS)[\lambda x\psi](x)]$$

is valid (and provable) in our logic. Of course, we do have

$$\vdash (\exists xS)[\lambda x(\varphi \vee \psi)](x) \leftrightarrow (\exists xS)[\lambda x\varphi](x) \vee (\exists xS)[\lambda x\psi](x).$$

[23] It should perhaps be noted that whereas '[Every politician]$_{NP}$ [either is cynical or deceives himself]$_{VP}$', with its noun and verb phrases marked, is a *basic* form of assertion in our theory, having the logical form

$$(\forall x Politician)[\lambda x Cynical(x) \vee Deceives(x, x)](x),$$

which perspicuously represents it as the result of applying a simple referential concept with a complex predicable concept, 'Either [every politician is cynical]$_S$ or [every politician deceives himself]$_S$' is not the form of a basic assertion in our theory at all. This is another indication of what is wrong with Geach's claim about the role of connectives in complex predicates.

conjunction of two assertions in each of which the same referential concept is applied. The important point to note here is that to apply the same referential concept in two conjoined assertions is not the same as to purport to refer to the same object or objects in those assertions—unless the referential concept in question is based on the use of a proper name. Geach's implicit (and false) assumption seems to be that if a quantifier phrase can be used as a "genuine" referential expression, then it must refer to the same object(s) whenever it is so used. But, e.g., in asserting conjunctively that some democrats will vote a straight ticket and that some democrats will not, one does not (purport to) refer to the same democrats in both assertions. It is by begging the question and assuming that only proper names can be used as "genuine" referential expressions that Geach's negation and complex predicate arguments have any plausibility.

4. Active Versus Deactivated Referential Concepts

Geach does have a more interesting type of argument that does not beg the question, but which in our conceptualist theory involves an important distinction between active and deactivated referential concepts. In explaining this distinction, we note first that a basic thesis of our theory is that a referential concept is never part of what informs a speech or mental act with a predicable nature, but functions only as what informs such an act with a referential nature (i.e. as what accounts for that act's intentionality or aboutness). Every basic assertion (as expressed by a noun phrase and a verb phrase), in other words, is the result of applying just one referential concept and one predicable concept. This means that a predicable concept that is represented in natural language by a complex predicate expression in which a referential (quantifier) expression occurs is not applied in such a way as to presuppose an active exercise of the referential concept that that referential expression stands for. Rather, the presupposition is that the referential concept has been "deactivated", which means that the predicable concept is formed on the basis not of the referential concept but of its intensional content instead. In other words, an applied predicable concept that is represented in natural language by a complex predicate expression in which a referential (quantifier) expression occurs is not formed on the basis of the referential concept that that referential expression stands for, but on the basis of the intensional content of that referential concept.[24]

By the intensional content of a referential concept we mean here the intensional

[24]This interpretation of quantifier phrases that occur as part of predicates (verb phrases) is a conceptual counterpart to how direct-object expressions (such as the quantifier phrase 'a unicorn') of transitive verbs (such as 'seek' and 'find') are interpreted in Montague grammar—where the direct-object expression stands for the intension (or sense) of what it otherwise would stand for when it occurs as the grammatical subject of a sentence. See "The proper treatment of quantification in ordinary English" in Montague [1974].

content of the predicable concept determined by, or corresponding to, that referential concept. For example, where S is a proper or common name symbol (complex or simple), and Q is a quantifier symbol representing a determiner of natural language, we understand the predicate expression—and thereby the abstract singular term that is its nominalized form—that is determined by the quantifier phrase (QxS) to be defined as follows[25]:

$$[QxS] =_{df} [\lambda F(QxS)F(x)].$$

In other words, by the intensional content of a referential (quantifier) expression (QxS), we understand the abstract intensional object that is denoted by the nominalized predicate $[\lambda F(QxS)F(x)]$, which we abbreviate as $[QxS]$. In general, we assume that any referential (quantifier) expression that occurs within an abstract singular term, i.e. within a nominalized complex predicate (i.e. a λ-abstract occurring as a singular term), has been deactivated and cannot be used in that occurrence to represent an active exercise of the referential concept that the expression otherwise stands for.

Consider, for example, a context in which the sentence 'John seeks a unicorn' is asserted. The speaker, we maintain, purports to refer (with or without existential presupposition) only to John in this context, and does not purport to refer to a unicorn. That is, despite the fact that the referential (quantifier) phrase 'a unicorn' occurs in the predicate or verb phrase making up the sentence used in this assertion, there is no active exercise of the referential concept that this phrase stands for; the referential concept, in other words, has been deactivated. This means that the referential (quantifier) expression 'a unicorn' is represented in logical syntax not by the quantifier expression $(\exists yUnicorn)$, but by the nominalized predicate determined by, or corresponding to, that expression, i.e., by $[\lambda F(\exists yUnicorn)F(y)]$, which is $[\exists yUnicorn]$ in abbreviated notation. Thus, the cognitive structure of an assertion of 'John seeks a unicorn' (where 'John' is used with existential presupposition) is represented in our theory by

$$(\exists xJohn)[\lambda xSeek(x, [\exists yUnicorn])](x),$$

where the quantifier phrase 'a unicorn' has been deactivated.

The same structural analysis, we maintain, applies to an assertion of 'John finds a unicorn'. That is, the referential concept that 'a unicorn' stands for is no less

[25]The application of the λ-operator to predicate variables is understood as an abbreviated notation, which, in the monadic case, is indicated as follows:

$$[\lambda F\varphi] =_{df} [\lambda z(\exists F)(z = F \wedge \varphi)],$$

where z does not occur free in φ.

deactivated in this assertion than it is in ‘John seeks a unicorn’, which means that the cognitive structure of this assertion is represented as

$$(\exists x John)[\lambda x Find(x, [\exists y Unicorn])](x).$$

There is a difference between the two predicable concepts represented by $Seek$ and $Find$, in that the latter but not the former is extensional in its range (or second domain) as well as in its (first) domain. We represent this conceptual fact by the following meaning postulate (where Q is a schematic quantifier sign representing the determiners of natural language and S is a variable having names, proper or common and simple or complex as substituends):

$$[\lambda x Find(x, [QyS])] =_{df} [\lambda x (QyS) Find(x, y)].$$

It is by means of this meaning postulate that an assertion of the following argument,

John finds a unicorn; therefore, a unicorn is found by John,

which is symbolized as

$$\begin{array}{l} (\exists x John)[\lambda x Find(x, [\exists y Unicorn])](x) \\ \therefore\ (\exists y Unicorn)[\lambda y Find([\exists x John], y)](y), \end{array}$$

is seen to be valid. The related argument,

John seeks a unicorn; therefore, a unicorn is sought by John,

is not valid—even though it has the same logical structure—because, unlike ‘find’ the verb ‘seek’ is not extensional in its range (or second domain) as well as in its (first) domain.[26] The two arguments differ not in their form, in other words, but in the kind of relational concept each is based on, and in particular on whether the concept is extensional in its range (second domain) or not.

We should perhaps note here that $Find$ is a relational *concept*, and not a “real” relation in nature that can obtain only between concrete objects. That is why $Find$, as a relational concept, can be used in the formation of a monadic concept such as *Find-a-unicorn*, symbolized here as $[\lambda x Find(x, [\exists y Unicorn])]$, which in turn is neither a “real” property in nature nor a “logically real” complex property having an abstract object—namely, the intensional objected denoted by $[\exists y Unicorn]$—as a

[26]We assume that transitive verbs are in general interpreted as being extensional in their (first) domains. Intensional verbs, such as ‘seek’, are not extensional in their range (or second domains). The examples in this case are taken from Montague’s “The Proper Treatment of Quantification in Ordinary English”, reprinted in Montague [1974].

constituent. Concepts, as we have said, are cognitive capacities, and a predicable concept in particular is not only what informs a speech or mental act with a predicable nature, but is also what underlies our rule-following ability in the use of a predicate expression—and as a rule-following ability, it determines the truth conditions associated with the correct use of that expression.

The fact that a predicable concept—such as those that $[\lambda x Find(x, [\exists y Unicorn])]$ and $[\lambda x Seek(x, [\exists y Unicorn])]$ stand for—has a complex representation does not mean that it is a complex logical entity that has a "real" relation and an abstract object as constituents. Rather, what it means is that the truth conditions determined by that concept are complex and involve the intensional content of a referential concept (which itself is a projection into the domain of individuals of the truth conditions associated with the use of that referential concept). If the predicable concept is based on an extensional relation, such as $Find$, then, as noted in the meaning postulate for $Find$, the involvement of the intensional content in those truth conditions is equivalent to a strictly extensional account. The idea, accordingly, that the predicable concept $Find$ can have a class of ordered pairs as its extension with abstract objects as constituents of some of those pairs is only a construction (albeit a mathematically useful one) of abstract (set-theoretic) semantics, and does not mean that $Find$ is a "real" relation which can obtain between concrete and abstract objects.[27]

This distinction is especially important in the use of the copula to express identity, as when we say that Bill is a democrat. Here, strictly speaking, it is not the relational concept of identity that is represented by 'is', but an extended version of that relation, which, for convenience, we will symbolize as 'Is'. The cognitive structure of an assertion (with existential presupposition) of 'Bill is a democrat' is then represented as

$$(\exists x Bill)[\lambda x Is(x, [\exists y Democrat])](x).$$

That is, because there is only one referential concept being exercised in an assertion of 'Bill is a democrat', namely, that represented by $(\exists x Bill)$, the referential concept that the quantifier phrase 'a democrat' stands for is deactivated. Of course, this does not mean that we are asserting that Bill is identical with the intensional content of that referential concept. To get at the right truth conditions for this sort of assertion, we assume the following as a meaning postulate (with S a variable having complex or simple names, proper or common, as substituends),

$$[\lambda x Is(x, [\exists y S])] = [\lambda x(\exists y S)(x = y)],$$

[27] One might compare our conceptual view here with Montague's representation of the transitive verb 'find' in his type-theoretical intensional logic, where such a "logically real" relation between concrete and abstract objects is involved. Of course, Montague is concerned with representing only the truth conditions of our assertions in a logical realist framework, and not also with representing the cognitive structure of those assertions as speech or mental acts.

from which the validity of

$$(\exists x Bill)[\lambda x Is(x, [\exists y Democrat])](x) \leftrightarrow (\exists x Bill)(\exists y Democrat)(x = y)$$

follows.[28]

5. Deactivation and Geach's Arguments

In one of his arguments against general reference, Geach claims that "we cannot suppose 'some man' to refer to some man in one single way", because, if it were a "genuine" referring expression, then "we should have to distinguish several types of reference—it is not easy to see how many".[29] Suppose, he says, "we can say 'some man' refers to some man in a statement like this:

(1) Joan admires some man,

that is, a statement in regard to which the question 'which man?' would be in order. Let us call this type of reference type A. Then in a statement like the following one:

(2) Every girl admires some man

'some man' must refer to some man in a different way, since the question 'Which man?' is plainly silly" (ibid.). Calling this type of reference type B reference, Geach goes on to argue that we must then distinguish further types as well.

The problem with this argument is that in an assertion of either (1) or (2), the referential concept that the quantifier phrase 'some man' stands for has been deactivated, i.e., the phrase is not being used to refer in either case. There is a difference between the two assertions, moreover, in that (1) logically implies that some man is admired by Joan (assuming 'Joan' is being used with existential presupposition in this context), whereas (2) does not logically imply that some man is admired by every girl. This can be easily seen to be so in the logical forms representing the cognitive structures of these assertions,

$$(\exists x Joan)[\lambda x Admire(x, [\exists y Man])](x) \tag{1'}$$

and

$$(\forall x Girl)[\lambda x Admire(x, [\exists y Man])](x). \tag{2'}$$

[28] Russell, incidentally, proposed a similar analysis in [PoM], where he assumed that every proposition consists of a relation between "terms", and that, e.g., the proposition expressed by 'Socrates is a man' expresses a relation between Socrates and the denoting concept *a man*. Presumably, the relation was not strict identity, but something like what we are representing here by Is. Of course, Russell was proposing a logical realist theory in [PoM], and not a conceptualist theory; and he had nothing like our distinction between active and deactivated concepts.

[29] [R&G], p. 32. Geach attributes this argument to Elizabeth Anscombe.

Here we assume that 'admire' is extensional in its range (second domain) as well as in its (first) domain.[30] That is, we take

$$[\lambda x Admire(x, [QyS])] = [\lambda x (QyS) Admire(x, y)]$$

to be a meaning postulate (at least in the context in question) representing a conceptual truth. Then, from an instance of this postulate it can be seen that (by λ-conversion and commutation of existential quantifier phrases),

$$(\exists y Man)[\lambda y Admire([\exists x Joan], y)](y),$$

or equivalently, not considering it as the form of an assertion,

$$(\exists y Man)(\exists x Joan) Admire(x, y),$$

follows validly from (1′)—which indicates why the question 'Which man?' is appropriate in a context in which (1) is asserted.[31] What follows validly from (2′) is

$$(\forall x Girl)(\exists y Man) Admire(x, y),$$

and not

$$(\exists y Man)(\forall x Girl) Admire(x, y),$$

which, in the form of an assertion, is equivalent to

$$(\exists y Man)[\lambda y Admire(x, [\forall x Girl])](y).$$

This shows why the question 'Which man?' is inappropriate in a context in which (2) is asserted. It is simply false, on our account, to claim that there are two different types of reference in assertions of (1) and (2). In both, as we have said, the referential concept that the quantifier phrase 'some man' stands for has been deactivated, which means that the phrase is not being used in these sentences to refer, no less to refer in two different ways.

Another argument that Geach gives turns on misconstruing a reflexive pronoun as "a pronoun of laziness," i.e. as a pronoun that functions as a proxy for its grammatical antecedent and that can be replaced by that expression "without changing the force of the proposition" ([R&G], p. 151). "If 'every man' has reference to every man,"

[30] It is clear that Geach assumes this to be so in the context in question. In some contexts, it would seem, 'admire' might function as an intensional verb—as, e.g., when we say of someone that s/he admires Sherlock Holmes.

[31] In general, wh-questions apply only to active referential expressions, not to deactivated ones—or, as in this case, to those that could be activated as part of a statement that follows validly from a given assertion.

Geach writes, "and if a reflexive pronoun has the same reference as the subject of the verb, how can 'Every man sees every man' be a different statement from 'Every man sees himself'?" (ibid., p. 9). Clearly they are different statements, which, according to Geach, shows that 'every man' cannot be used to refer to every man—rather than that the reflexive pronoun in this case is not functioning as a pronoun of laziness, even if it has the same reference as the subject of the verb.

In our theory the occurrence of 'every man' in the verb phrase of 'Every man sees every man' is not being used to refer to every man, but stands for a deactivated referential concept. The same sort of observation applies, for comparison, to an assertion of 'John sees John', where the occurrence of 'John' after the transitive verb 'sees' stands for a deactivated referential concept. The cognitive structures of these two assertions (where it assumed that 'John' is used with existential presupposition) are perspicuously represented as follows:

$$(\forall x Man)[\lambda x Sees(x, [\forall y Man])](x),$$
$$(\exists x John)[\lambda x Sees(x, [\exists y John])](x),$$

where the occurrences of the referential expressions 'every man' and 'John' after the transitive verb are interpreted as standing for their respective intensional contents.

Note that unlike the above assertions, which involve the application of different predicable concepts, assertions of 'Every man sees himself' and of 'John sees himself' involve an application of the same predicable concept, which is represented by $[\lambda x Sees(x, x)]$. The cognitive structures of these assertions are then represented as follows:

$$(\forall x Man)[\lambda x Sees(x, x)](x),$$
$$(\exists x John)[\lambda x Sees(x, x)](x).$$

There is no doubt that the reflexive pronoun 'himself' is not functioning as a pronoun of laziness in these assertions—even though it has "the same reference as the subject of the verb".

Now, if the relational concept of seeing, i.e. $[\lambda xy See(x, y)]$, is extensional in its range (or second as well as its first domain), then, because 'John' is a proper name that is assumed to name exactly one object in the context in question, it follows that 'John see John' and 'John sees himself' are necessarily equivalent, i.e.,

$$(\exists x John)[\lambda x Sees(x, [\exists y John])](x) \leftrightarrow (\exists x John)[\lambda x Sees(x, x)](x)$$

is provable.[32] That is, in the case of a proper name A (where A is assumed to name exactly one object in the context in question), it is true that 'A sees A' and 'A sees

[32] If 'see' is interpreted as an extensional transitive verb in a given context, then seeing in that

her/himself' are necessarily equivalent, which is not to say that the cognitive structure of their respective assertions would then be same—and in fact they would have different cognitive structures as indicated by the above logical forms. On the other hand, 'Every man sees every man' and 'Every man sees himself' are not equivalent; but, contrary to Geach's claim, this does not mean that the use of 'every man' as the grammatical subject of an assertion of either of these sentences does not refer to every man—even though its use as the direct object of the verb does not stand for a referential concept. Once again, Geach's implicit assumption seems to be that a referential expression is not a "genuine" referring expression, but only a "quasi subject", if it does not behave logically the way a (nonempty) proper name does.

6. Relative Pronouns and Referential Concepts

Some of Geach's arguments are directed not only against general referential expressions of the form 'every S' and 'some S', but also against the view that there are complex names of the form 'S that is F', and hence against complex referential expressions of the form 'every S that is F' and 'some S that is F', which, as already noted, we symbolize in our theory as $(\forall x S/F(x))$ and $(\exists x S/F(x))$. One such argument Geach gives in this regard is based on the following medieval paralogism ([R&G], p. 143):

> Only an animal can bray; *ergo*, Socrates is an animal, if he can bray.
>
> But any animal, if he can bray, is a donkey.
>
> *Ergo*, Socrates is a donkey.

Geach correctly observes that "we clearly cannot take 'animal, if he can bray' as a complex term [i.e., as a complex name] that is a legitimate reading of 'A' in 'Socrates is an A; any A is a donkey; *ergo*, Socrates is a donkey" (ibid.); but he does not explain the relevance of this observation, or how this shows that a complex name like 'animal that can bray' is not "a genuine logical unit" (ibid., 142).

One suspects that Geach has confused (or is trying to get his reader to confuse) the complex name 'animal that can bray' with an expression that is not a complex name—namely, 'animal, if he can bray'. In other words, because an assertion of 'Every animal that can bray is a donkey' is equivalent—by the meaning postulate (MP_1) of section 2 for complex referential expressions—to an assertion of 'Every animal, if he

context does not imply knowing who or what it is that one sees. For example, John's seeing Mary (in the extensional sense) does not imply that John knows that it is Mary he sees; and, similarly, John's seeing John (as in a mirror or a photo) does not imply that John knows that he sees himself. In some contexts, 'see' might well be interpreted as an intensional verb, and in that case, 'John sees John' and 'John sees himself' would not then be equivalent.

can bray is a donkey', in symbols,

$$(\forall x Animal/Can\text{-}Bray(x))[\lambda x Is(x,[\exists y Donkey])](x) \leftrightarrow \\ (\forall x Animal)[\lambda x(Can\text{-}Bray(x) \rightarrow Is(x,[\exists y Donkey]))](x),$$

Geach seems to confuse the grammatically correct claim that in the first assertion we are referring to every animal that can bray with the grammatically incorrect claim that in the second assertion we are referring to every animal, if he can bray. Thus, according to Geach, "the phrase 'animal that can bray' is a systematically ambiguous one, so that we must devine from the context which connective is packed up along with 'he' into the portmanteau word 'that' " (ibid.).

Geach recognizes that "we cannot count this as proved" and attempts to "confirm the suggestion of ambiguity by considering another sort of medieval example" (ibid.). This is the pair of sentences,

Any man who owns a donkey beats it. (3)

Some man who owns a donkey does not beat it. (4)

in which, on our account, 'man who owns a donkey' occurs as a complex name. Geach says that if 'man who owns a donkey' is a complex name, then it is "replaceable by the single word 'donkey-owner"', in which case (3) and (4) would become "unintelligible" (ibid., p. 144). Of course, this sort of "replacement argument" is fallacious in that it deprives the relative pronoun 'it' in (3) and (4) of an antecedent, as Geach himself seems to acknowledge. He then suggests a supposedly "plausible rewording" of (3) and (4) in which 'it' is given an antecedent, namely,

Any man who owns a donkey owns a donkey and beats it. (5)

Some man who owns a donkey owns a donkey and does not beat it. (6)

But (5) and (6) are not equivalent to (3) and (4), as Geach notes, because, in particular, unlike (3) and (4), (5) and (6) are not contradictories in that "both would be true if each donkey-owner had two donkeys and beat only one of them" (ibid.). Geach then rephrases (3) and (4) as

Any man, if he owns a donkey, beats it. (3′)

and

Some man owns a donkey and he does not beat it. (4′)

which, by the meaning postulates (MP_1) and (MP_2) for complex referential expressions (given in section 2), are equivalent to (3) and (4). That is, as represented by appropriate instances of those meaning postulates, (3) and (3′), and (4) and (4′), have the same truth conditions—even though the cognitive structures of the speech or mental acts they represent are not the same. Ignoring the distinction between logical forms that represent the cognitive structure of our speech and mental acts and logical forms that represent the truth conditions of those acts, Geach fallaciously concludes that "the complex term 'A that is P' is a sort of logical mirage. The structure of a proposition in which such a complex term appears to occur can be readily seen only when we have replaced the grammatically relative pronoun by a connective followed by a pronoun; when this is done, the apparent unity of the phrase disappears" (ibid., p. 145).

One way to see that Geach's conclusion does not follow is to interpret the relative pronoun 'it' in (3) and (4) as an anaphoric proxy for a complex (deactivated) referential phrase, though not necessarily the same referential phrase in both.[33] In (3), for example, 'it' can be interpreted as an anaphoric proxy for 'every donkey that he owns', which, by our rules, does result in a sentence that represents the truth conditions of (3), namely,

$$(\forall x Man/Own(x, [\exists y Donkey]))[\lambda x Beat(x, [\forall y Donkey/Own(x, y)])](x). \tag{3_a}$$

Here it should be noted that although the (defining) relative clause 'who owns a donkey' in (3) contains the referential (quantifier) phrase 'a donkey', no reference is being made in this assertion to a donkey, but only to every man who owns a donkey, which means that the referential concept that 'a donkey' stands for has been deactivated in the reference in question. That (3_a) does represent the right truth conditions can be seen in noting first that by meaning postulate (MP_1), (3_a) can be transformed into

$$(\forall x Man)[\lambda x(Own(x, [\exists y Donkey]) \to Beat(x, [\forall y Donkey/Own(x, y)])](x), \tag{$3'_a$}$$

which, with 'it' in (3′) interpreted as the same anaphoric proxy as in (3), is the logical form that represents the cognitive structure of (3′). Now, because both 'own' and 'beat' are assumed to be extensional in their range, $(3'_a)$ can be transformed into

$$(\forall x Man)[(\exists y Donkey)Own(x, y) \to (\forall y Donkey)(Own(x, y) \to Beat(x, y))],$$

which, by standard logical transformations, is equivalent to

$$(\forall x Man)(\forall y Donkey)[Own(x, y) \to Beat(x, y)].$$

This last formula does not represent the cognitive structure of an assertion of either (3) or (3′), but it does give a logically perspicuous representation of the truth conditions of both, as Geach himself maintains.

[33] The proposal we describe here was originally made in Cocchiarella [1989], section 7.

The relative pronoun 'it' in (4) is an anaphoric proxy of a different referential expression than what 'it' is a proxy for in (3). Some man, as already noted, might own two donkeys and beat only one of them, in which case reading 'it' in (4) as 'every donkey that he owns' will not do. This also shows why interpreting 'it' in (4) as an anaphoric proxy for 'the donkey that he owns' will not do as well. The correct choice, as we show below, is to understand 'it' in (4) as an anaphoric proxy for the different referential expression, 'a donkey that he owns'. Under this interpretation, where the negation in the verb phrase 'does not beat it' is internal to the predicate, the cognitive structure of (4) is represented as follows:

$$(\exists x Man/Own(x, [\exists y Donkey]))[\lambda x[\lambda zw \neg Beat(z, w)](x, [\exists y Donkey/Own(x, y)])](x),$$

which we will call (4_a). Now, given the extensionality of 'own' and 'beat' (and therefore of 'does not beat'), as well as the meaning postulate (MP_2) for complex referential expressions, (4_a) can be transformed into the following equivalent formula,

$$(\exists x Man)[(\exists y Donkey)Own(x, y) \wedge (\exists y Donkey)(Own(x, y) \wedge \neg Beat(x, y))],$$

which, by standard transformations, is equivalent to

$$(\exists x Man)(\exists y Donkey)[Owns(x, y) \wedge \neg Beat(x, y)].$$

This last formula does not represent the cognitive structure of an assertion of (4), but it does give a logically perspicuous representation of the truth conditions of such an assertion, as Geach himself maintains. In this way it can also be seen that (3_a) and (4_a) are contradictories, i.e., they both cannot be true and they both cannot be false.

The sentences (3) and (4), accordingly, in no way support Geach's claim that "the complex term '*A* that is *P*' is a sort of logical mirage", i.e. that it is not "a genuine logical unit", and that such expressions must be expanded into forms where there are no complex names at all. Nor do they show that there are inextricable difficulties with the conceptualist theory of reference we have described here.

7. Relative Pronouns as Referential Expressions

There is another more interesting, but also more problematic, way to show what is wrong with Geach's argument against complex names, and therefore also against complex referential expressions. On this proposal, relative pronouns are themselves referential expressions, which in some cases, such as in assertions of (3) and (4), stand for a deactivated referential concept, whereas in others they stand for an active referential concept that is relative to, and dependent upon, a preceding active referential concept that is exercised in an antecedent assertion. On this proposal, what Geach's argument in the above examples really shows is the need for a special operator to represent relative pronouns as referential expressions in their own right, or what might called *pronominal referential expressions*, rather than as proxies for nonpronominal referential expressions.

The operator we adopt for this purpose is the symbolic counterpart of the relative pronoun 'that' (or, in plural contexts, 'those'), which we will symbolize here as $\mathcal{T}$, and which, like the quantifiers $\forall$ and $\exists$, binds one variable and is attached to a name, complex or simple, proper or common, as in $(\mathcal{T}xMan)$, which we read as 'that man' (or 'those men' in plural contexts), or , $(\mathcal{T}yDonkey)$, which we read as 'that donkey'. On this proposal, the sentence (3) has the same assertive force as

If a man owns a donkey, then he beats that donkey.

or, if one prefers, the same as

If a man owns a donkey, then he beats it (i.e. that donkey).

with the phrase 'that donkey' expressed, as it were, *sotto voce*. On this proposal, the cognitive structure of (3) is not represented as (3_a), accordingly, but as

$$(\forall xMan/Own(x, [\exists yDonkey]))[\lambda xBeat(x, [\mathcal{T}yDonkey])](x). \tag{3_b}$$

The relative pronoun 'it' in (3), in other words, is a proxy for the pronominal referential expression 'that donkey', which in this context stands for a deactivated referential concept relative to the deactivated antecedent referential concept that 'a donkey' stands for in the grammatical subject of (3). Now, by the meaning postulate (MP_1) for complex referential expressions, (3_b) is equivalent to

$$(\forall xMan)[\lambda x(Own(x, [\exists yDonkey]) \rightarrow Beat(x, [\mathcal{T}yDonkey]))](x), \tag{$3'_b$}$$

which, on the present proposal, represents the cognitive structure of an assertion of $(3')$. Then, because 'own' and 'beat' are extensional transitive verbs, it follows that (3_b) and $(3'_b)$ are equivalent to

$$(\forall xMan)[(\exists yDonkey)Own(x, y) \rightarrow (\mathcal{T}yDonkey)Beat(x, y)],$$

which does not represent the cognitive structure of a speech or mental act, but does represent the truth conditions of an assertion of either (3) or $(3')$. For a logically more perspicuous representation of those truth conditions, we need the following meaning postulate for the $\mathcal{T}$-operator to make clear that it is functioning as a pronoun relative to an antecedent referential expression[34]:

$$[(\exists yS)\varphi \to (\mathcal{T}yS)\psi] \leftrightarrow [(\forall yS)(\varphi \to \psi)]. \tag{MP$_3$}$$

Thus, by mean of this postulate and the preceding formula, it follows that

$$(\forall xMan)(\forall yDonkey)[Owns(x, y) \to Beat(x, y)]$$

is equivalent to (3_b) and $(3'_b)$, and, as noted for our first proposal (of the preceding section), this formula clearly provides a logically perspicuous representation of their truth conditions.

Turning now to a formal representation of the cognitive structure of (4), where the negation in 'does not beat it' is internal to the predicate, we have

$$(\exists xMan/Own(x, [\exists yDonkey]))[\lambda x[\lambda zw\neg Beat(z, w)](x, [\mathcal{T}yDonkey])](x), \tag{$4'_b$}$$

which, by the meaning postulate (MP_2) and the extensionality of 'own' and 'beat' (and therefore of 'does not beat'), is equivalent to

$$(\exists xMan)[(\exists yDonkey)Own(x, y) \wedge (\mathcal{T}yDonkey)\neg Beat(x, y)].$$

The relevant meaning postulate for the $\mathcal{T}$-operator in this case is the following,

$$[(\exists yS)\varphi \wedge (\mathcal{T}yS)\psi] \leftrightarrow [(\exists yS)(\varphi \wedge \psi)], \tag{MP$_4$}$$

which, together with the preceding formula, shows that $(4'_b)$ is equivalent to, and therefore has the same truth conditions as,

$$(\exists xMan)(\exists yDonkey)[Own(x, y) \wedge \neg Beat(x, y)],$$

which, as already noted, is easily seen to be a contradictory of the above logically perspicuous representation of the truth conditions for (3). That is, both this proposal and the one of the preceding section yield logical analyses of (3) and (4) that have the truth conditions Geach says they have—notwithstanding the fact that complex names and referential expressions are central to both.

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[34]In order to avoid inconsistencies in the use of the $\mathcal{T}$-operator, we must require that *standard* logical transformations (including rewrite of bound variables) be restricted in their application in some appropriate way until all occurrences of the $\mathcal{T}$-operator have been eliminated in accordance with the meaning postulates for that operator. It is the need for this sort of constraint that makes this proposal problematic.

Note that (MP_3) explains why sentences like 'If someone is married, then (s)he (i.e. that person) has a spouse' and 'If a witness lied, then (s)he (i.e. that witness) committed perjury' have the truth conditions that they do.

Geach, it should be noted, rejects the idea that a relative pronoun can be taken as a referential expression. When "a relative pronoun is not a pronoun of laziness," Geach claims, "it is in general quite absurd to treat it as a 'singular referring expression', and ask what it refers to" ([R&G], p. 152). It is, for example, absurd, Geach says, to ask which man is meant or referred to by the pronoun 'he' in an assertion of the following sentence:

$$\text{Just one man broke the bank at Monte Carlo, and he died a pauper.} \tag{7}$$

Now, it may in fact be that no one man, or perhaps more than one man, broke the bank at Monte Carlo, in which case it would be false to say that 'he' in (7) refers to *the* man who broke the bank at Monte Carlo. But, on our conceptualist account, it would not be false or absurd to say that someone who asserts (7)—i.e., who asserts each conjunct of (7) conjunctively—*purports*, or *intends*, to refer to the man who broke the bank at Monte Carlo in that use of 'he'—which is not to say that just one man broke the bank at Monte Carlo and the person who asserts (7) intends to refer to *him*. In other words, the definite description, 'the man who broke the bank at Monte Carlo', as it occurs in the sentence 'Someone purports, or intends, to refer to the man who broke the bank at Monte Carlo' stands for a deactivated referential concept on our conceptualist account; and, because the predicate 'x purports (or intends) to refer to y' is an intensional verb, the deactivated referential concept it stands for cannot validly be brought forward, as it were, and exercised as an active referential concept.

On the account we are proposing here, the cognitive structure of the two conjoined assertions in (7) can be represented as follows,

$$(1xMan)[\lambda x Broke\text{-}Bank(x)](x) \wedge (\mathcal{T}xMan)Died\text{-}Pauper(x), \tag{7_b}$$

where 'broke the bank at Monte Carlo' and 'died a pauper' are represented in an abbreviated form, and where the numerical quantifier phrase 'just one man' (or 'exactly one man', or 'one man') is represented by $(1xMan)$.[35] Here, we are interpreting the relative pronoun 'he' in (7) as a proxy for 'that man', which stands for the active referential concept of the second assertion conjoined in (7)—but a referential concept that is relative to the active referential concept of the first assertion in (7), i.e. the referential concept that 'just one man' stands for.[36]

Now the meaning postulate for $(1xS)$, where S is a name, complex or simple, is

$$(1xS)\varphi \leftrightarrow (\exists yS)(\forall xS)(\varphi \leftrightarrow x = y),$$

[35] See Cocchiarella [1989], section 4, for an analysis of numerical quantifier phrases, as well as of how numerical predicates and numerals as singular terms are "derived" from such quantifiers by means of Frege's double-correlation thesis.

[36] It is noteworthy that on the proposal of section 6 above, the relative pronoun 'he' in (7) is an anaphoric proxy for 'the man who broke the bank at Monte Carlo', and not for just 'the man'. The

where y is a variable other than x that does not occur free in φ. By this postulate and the second meaning postulate for the $\mathcal{T}$-operator (given in the preceding section), (7_b) is easily seen to be equivalent to

$$(\exists yMan)[(\forall xMan)(\textit{Broke-Bank}(x) \leftrightarrow x = y) \wedge \textit{Died-Pauper}(y)],$$

which, as Geach agrees, gives a logically perspicuous representation of the truth conditions of (7).

According to Geach, if 'he' in (7) really is a referential expression, then it must have "a reference" that is "somehow specifiable" regardless whether or not (7) is true, "so as to be the same whichever answer to the question is right" ([R&G], p. 152). That is, it is not a matter of whether one can purport, or intend, to refer in the use of 'he' in an assertion of (7)—i.e. in an assertion of the second conjunct of (7) when conjoined with an assertion of the first conjunct of (7). Rather, in order for 'he' in (7) to be a "genuine" referential expression so that it can be used to stand for the exercise of a referential concept, it must, according to Geach, have "a reference" regardless whether (7) is true or not. Here we are back to Geach's claim that a quantifier phrase cannot be a "genuine" referential expression (the way that nonempty proper names are) if it does not have "a reference" independently of whether or not the sentences in which it occurs are true or false. Thus, e.g., the expression 'some man' in 'Some man broke the bank at Monte Carlo' cannot be a "genuine" referring phrase, according to Geach, because there can be no answer to the question 'Which man?' if "a predication of this sort is false" (ibid., p. 30). Against the idea that there is a difference between purporting, or intending, to refer in the exercise of a referential

analysis of (7) is then given as

$$(1xMan)[\lambda x\textit{Broke-Bank}(x)](x) \wedge (\exists_1 xMan/\textit{Broke-Bank}(x))\textit{Died-Pauper}(x) \qquad (7_a)$$

Nevertheless, it turns out that as with (3_a) and (3_b), and (4_a) and (4_b), (7_a) and (7_b) are provably equivalent, and hence represent the same truth conditions.

concept and the success conditions for actually referring in that act, Geach writes:

> One might try saying that, when ‘Some men are P’ is false, ‘some men’ is an expression intended to refer to some men, but in fact fails to refer. But if in the sentence represented by ‘Some men are P’ the subject-term is meant to refer to some men, but fails to do so, then the sentence as a whole is *intended* to convey a statement *about* some men, but fails to do so—and therefore does not convey a false statement *about* some men, which contradicts our hypothesis. ([R&G], p. 30, italics added.)

In other words, if in asserting that some men are P, one purports, or intends, to refer to some men, but fails to do so (because no men are P), then, according to Geach, some men are such that one purports, or intends, to convey a statement about *them*. This is clearly a mistaken view that fails to recognize the intensionality of purporting, or intending, to refer, i.e. that confuses a deactivated referential concept with an active exercise of that concept.

8. Concluding Remarks

We do not claim that the theory of relative pronouns as referential expressions proposed in section 7 is unproblematic, it should be noted. If it should turn out that it cannot be sustained, then we still have the theory proposed in section 6, where relative pronouns are taken as anaphoric proxies for nonpronominal referential expressions. In other words, whether the proposal of section 7 is sustained or not, we maintain that Geach's arguments against complex names and general reference do not work against the kind of conceptualist theory we have presented here.

We also do not claim to have proved that our conceptualist theory of reference resolves all problems about reference, but only that it has passed an initial test of adequacy as far as Geach's arguments in [R&G] are concerned. It is our view that a conceptualist theory is what is needed to account for reference and predication in our speech and mental acts, and that only a theory of the referential and predicable concepts that underlie the basic forms of such acts will suffice. Such a theory, we maintain, must provide a uniform account of general as well as singular reference, and, in terms of the referential and predicable concepts involved in a speech or mental act, it must distinguish the logical forms that represent the cognitive structure of that act from the logical forms that only represent its truth conditions. That, in any case, is the kind of conceptualist theory we have attempted to describe and defend here.

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